What is claimed is:

1. An additive for an aluminum based semi-fuel cell system comprising:

a combination of components including gallium, oxygen, and a sodium component, said components preventing formation of an oxide layer on a surface of an aluminum anode in an alkaline electrolyte of said semi-fuel cell system.

2. The additive according to claim 1 wherein said combination of components is dissolvable in the alkaline electrolyte.

3. The additive according to claim 1 wherein said combination of components is sodium gallate.

4. The additive according to claim 3 wherein sodium gallate is obtained from the following:

sodium oxalate + gallium oxide $\underline{1200°C}$, sodium gallium oxide + carbon dioxide.

5. The additive according to claim 1 wherein the alkaline electrolyte of the semi-fuel cell system includes a reaction

of aluminum with an alkaline solution such as sodium hydroxide.

6. The additive according to claim 5 wherein the aluminum is elemental aluminum.

7. The additive according to claim 5 wherein the aluminum is an aluminum alloy.

8. A process for preventing formation of an oxide layer on a surface of an aluminum anode in an aluminum based semi-fuel cell system comprising the steps of:

(a) forming an alkaline electrolyte solution in an anode compartment of said semi-fuel cell system; and

(b) introducing a combination of components including gallium, oxygen, and a sodium component into said alkaline solution.

9. The process according to claim 8 wherein said combination of components is dissolvable in the alkaline electrolyte.

10. The process according to claim 8 wherein said combination of components is sodium gallate.

11. The process according to claim 10 wherein sodium gallate is obtained from the following:

sodium oxalate + gallium oxide 1200°C, sodium gallium oxide + carbon dioxide.

12. The process according to claim 8 wherein the alkaline electrolyte of the semi-fuel cell system includes a reaction of aluminum with an alkaline solution such as sodium hydroxide.

13. The process according to claim 12 wherein the aluminum is elemental aluminum.

14. The process according to claim 12 wherein the aluminum is an aluminum alloy.